I CLAIM:

1. A galvanically isolated voltage sensing circuit, said circuit comprising:

a scaling device that provides a scaled signal of a input voltage to a modulator;

an oscillator providing a carrier frequency to said modulator;

said modulator modulating said scaled signal with said carrier frequency to produce a

5 modulated scaled signal;

an isolation transformer coupled to an output of said modulator; said isolation

transformer receiving said modulated scaled signal; and

a demodulator coupled to an output of said isolation transformer; said demodulator

demodulating said modulated scaled signal to produce an input voltage signal representative of

said scaled signal.

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2. The invention of claim 1 wherein said isolation transformer comprises a miniature

isolation transformer.

3. The invention of claim 1 wherein said scaling device comprises a high impedance

voltage divider coupled to a buffer.

4. The invention of claim 3 wherein said buffer comprises a high impedance input

buffer and a low impedance output.

5. The invention of claim 1 wherein said modulator also receives a Direct Current

bias input.

6. The invention of claim 1 wherein said demodulator comprises a linear rectifier, a

low pass filter, and a DC component blocker.

7. The invention of claim 1 wherein said carrier frequency is greater than a

frequency of said line voltage.

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8. The invention of claim 1 wherein said modulator comprises an AM modulator.

9. The invention of claim 1 wherein said scaling device comprises a resistive voltage

divider.

10. The invention of claim 1 wherein said scaling device comprises a capacitive

voltage divider.

11. The invention of claim 1 wherein said modulator comprises at least one rail-to-rail

switching element.

12. The invention of claim 1 wherein said voltage sensing circuit comprises a three-

phase voltage sensing circuit.

13. A method of galvanically isolating a voltage, said method comprising the steps of:

providing a scaled signal of an input voltage to a modulator;

generating a carrier frequency and providing said carrier frequency to said modulator;

producing a modulated scaled signal by modulating said scaled signal with said carrier

5 frequency;

coupling an isolation transformer to said modulator and a demodulator; said isolation

transformer receiving said modulated scaled signal;

demodulating said modulated scaled signal to produce a line voltage signal representative

of said scaled signal.

14. The invention of claim 13 wherein said isolation transformer comprises a

miniature isolation transformer.

15. The invention of claim 13 wherein said scaling device comprises a high

impedance voltage divider coupled to a buffer.

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- 16. The invention of claim 13 wherein said carrier frequency is greater than a frequency of said line voltage.
- 17. The invention of claim 13 wherein said carrier frequency is greater than about 1 MHz.
  - 18. The invention of claim 13 wherein said modulator comprises an AM modulator.
  - 19. The invention of claim 13 wherein said modulator comprises an FM modulator.
- 20. The invention of claim 13 wherein said input voltage comprises a three-phase voltage input.
  - 21. A voltage sensing circuit, said circuit comprising:
  - a scaling device comprising a high impedance voltage divider coupled to a buffer; a modulator coupled to an output of said scaling device and receiving a dc bias; an oscillator coupled to said modulator;
  - a miniature isolation transformer coupled to an output of said modulator; and
- a demodulator coupled to an output of said miniature isolation transformer, said demodulator comprising a linear rectifier, a low pass filter, and a DC component blocker;

wherein said demodulator demodulates an input and generates a scaled output line voltage.

22. The invention of claim 21 wherein said voltage sensing circuit comprises a threephase voltage sensing circuit.

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